

**BISON CONTROL AREA PROGRAM
ANNUAL REPORT OF SURVEY ACTIVITIES
DECEMBER 2008 – APRIL 2009**

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ABSTRACT

Bison in Wood Buffalo National Park (WBNP) and Slave River Lowlands (SRL) are infected with bovine tuberculosis and brucellosis while both the Nahanni and Mackenzie bison populations are free of these livestock diseases. To help protect the disease-free status of these two herds, the Government of the Northwest Territories implemented the Bison Control Area (BCA) program in 1987 with the objective of reducing probability of disease transmission between herds by preventing bison from moving through or establishing herds within a large area south of the Mackenzie River between the Trout and Buffalo Rivers. In order to keep this area free of bison, aerial surveys are flown to search for bison, and public participation by reporting any sightings or signs of bison is encouraged.

This program continued through the 2008/09 season with 11 weekly shoreline patrols, a semi-comprehensive survey and a comprehensive survey. In total, 77.9 hours were spent flying these surveys in a Cessna 337 over 19 days. Throughout the season, radio announcements, newspaper advertisements and community visits helped to communicate the purpose of the BCA and why public reports of bison are important to the program.

There were no bison or any signs of bison observed within the BCA during the 2008/09 season, nor were there any reports of bison submitted by the public.

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INTRODUCTION

The wood bison's (*Bison bison athabasca*) original range included the boreal forests of Alaska, Yukon, southern Northwest Territories, northeastern British Columbia, northern Alberta, and northwestern Saskatchewan. Although the wood bison never occurred in the large populations that plains bison did, they both met the same fate during the 19th century: near extinction due to over-hunting. In 1894, there were as few as 250 wood bison remaining (Soper 1941).

Wood bison were protected by the *Buffalo Protection Act* of 1877 and enforcement by the Northwest Mounted Police some 20 years later. Their numbers had rebounded to approximately 1500 by 1922 (Graham 1923) when Wood Buffalo National Park (WBNP) was established to help protect wood bison. In 1925, the federal government began moving plains bison from Buffalo National Park in Wainwright, Alberta, to WBNP. How many of the 6673 bison that were shipped survived the long train and barge ride from Wainwright is still debated; some say it may have been as low as only half (e. g. Carbyn *et al.* 1993). These bison were infected with bovine tuberculosis and brucellosis from domestic livestock and subsequently spread these diseases throughout the greater WBNP area (Fuller 2002). By 1934, bison numbers had increased to between 10 000 and 12 000 (Soper 1941).

Tuberculosis and brucellosis continue to be a hindrance to fully re-establishing wood bison populations in northern Alberta and southeastern NWT.

These diseases not only threaten healthy free-ranging bison but also healthy commercial herds of both bison and cattle (APFRAN 1998).

The strains of tuberculosis and brucellosis found in and around WBNP are bovine diseases that originated from domestic livestock, but they will also infect other species, including humans. Tuberculosis is caused by the bacterium *Mycobacterium bovis*; it is a chronic disease that causes yellow to tan nodules (tubercles) most often found in the chest cavity and lungs. Lymph nodes in the head and neck may also be swollen or necrotic. It is a progressive disease that leads to debilitation and emaciation. Brucellosis is caused by the bacterium *Brucella abortus*. Brucellosis causes abortions, swollen joints and swollen testicles.

Bovine tuberculosis and brucellosis were both discovered in WBNP in the 1950s (Corner and Connell 1958; Fuller 1959). In 1990, a group of researchers examined the remains of bison that had died as a result of hunting, predation, disease or natural accidents. The remains of 72 bison were examined and brucellosis was identified in 18 (25%) and tuberculosis in 15 (21%), resulting in a combined prevalence of 42% (Tessaro *et al.* 1990). The most recent study on prevalence rates of these diseases in the greater WBNP area found 49.0% of live-captured bison were positive reactors for tuberculosis and 30.9% were positive reactors for brucellosis (Joly and Messier 2004).

In 1963, 18 wood bison were released near Fort Providence in order to establish a disease-free herd. These 18 bison were part of a previously

undiscovered herd that was found in 1957 near the Nyarling River in WBNP (Tessaro *et al.* 1993). The Mackenzie bison population has since grown to be the largest, healthy, free-roaming bison population in Canada (Figure 1). The most recent survey has estimated this population to consist of 1600 animals (unpublished data).

The successful re-establishment of the Mackenzie bison population encouraged an attempt to re-establish another free ranging wood bison herd in the Northwest Territories. In 1980, 28 wood bison were moved from Elk Island National Park to the Liard River Valley (Figure 1). In 1989, an additional 12 bison were released and then in 1998, 61 more animals were released north of Fort Liard. It is now estimated that the Nahanni bison population numbers around 400 animals (Larter and Allaire 2007). This herd is being monitored and is considered to be healthy and free of bovine tuberculosis and brucellosis.

In addition to APFRAN's risk analysis, potential paths for bison movements between the diseased and healthy populations have been investigated (Gates and Wierzchowski 2003). This study found that if bison were to pass from the greater WBNP area to the Mackenzie bison range or vice versa they would most likely move along or near the southern shoreline of Great Slave Lake near the Mackenzie River, or north of Buffalo Lake. Because the distance between the northwest corner of the WBNP and the southeast corner of the Mackenzie Bison Sanctuary is within feasible bison dispersal range (Gates *et al.* 2001), cooperation from all interested groups is needed, including local, territorial and national governments as well as non-government entities and the public.

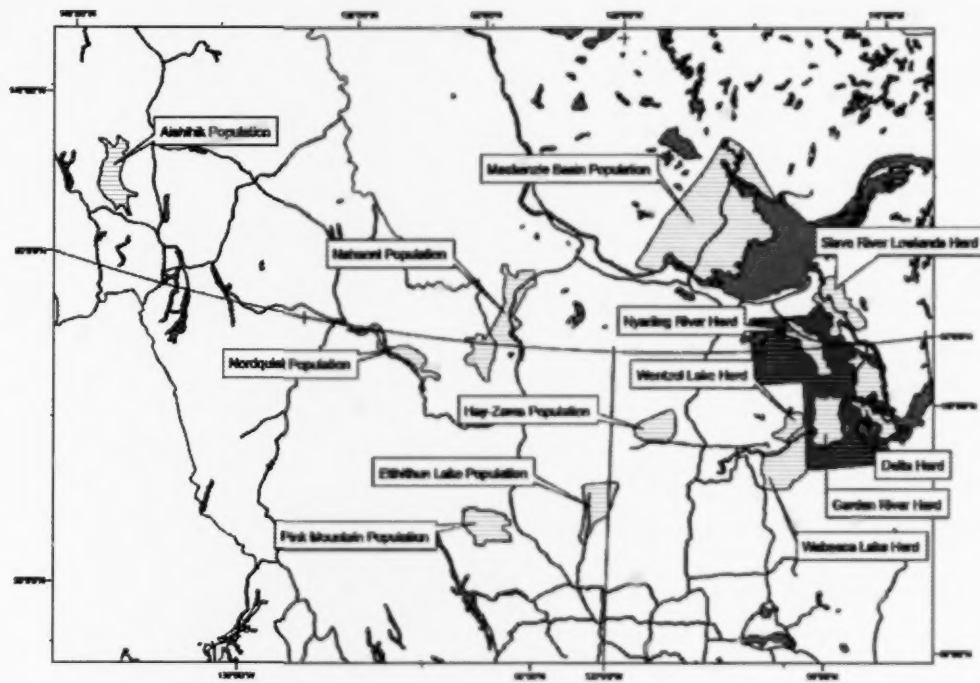


Figure 1: The current distribution of bison (*Bison bison*) in northern Canada. All populations are wood bison except Pink Mountain, which is plains bison.

Bison Control Area Program

The Bison Control Area (BCA) was established in 1987 to reduce the risk of bovine tuberculosis and brucellosis infected bison in the Slave River Lowlands (SRL) and WBNP coming in contact with disease-free bison in the Mackenzie, Nahanni and Hay-Zama (Alberta) populations by creating a buffer zone between diseased and disease-free populations. Bison are prevented from becoming established in the BCA, which encompasses over 3,936 km² bounded in the south by the NWT border, in the north by the Mackenzie River and Great Slave Lake, in the west by the Trout River and in the east by the Buffalo River. All bison found within the BCA are assumed to be diseased and are removed and tested.

Since 1993 the bison control program has been jointly funded by the Government of the Northwest Territories (Environment & Natural Resources) and the Government of Canada (Parks Canada Agency). Both governments realize the importance of maintaining healthy wood bison herds and promoting the growth of this species.

The objectives of the BCA program are to detect and remove any bison that may come into the area. The specific objectives are to:

- Conduct aerial surveillance of the BCA during the winter months;
- Maintain the BCA free of bison and prevent any herds from establishing within its limits;
- Increase public awareness about the program; and
- Confirm disease status of any bison found in the BCA.

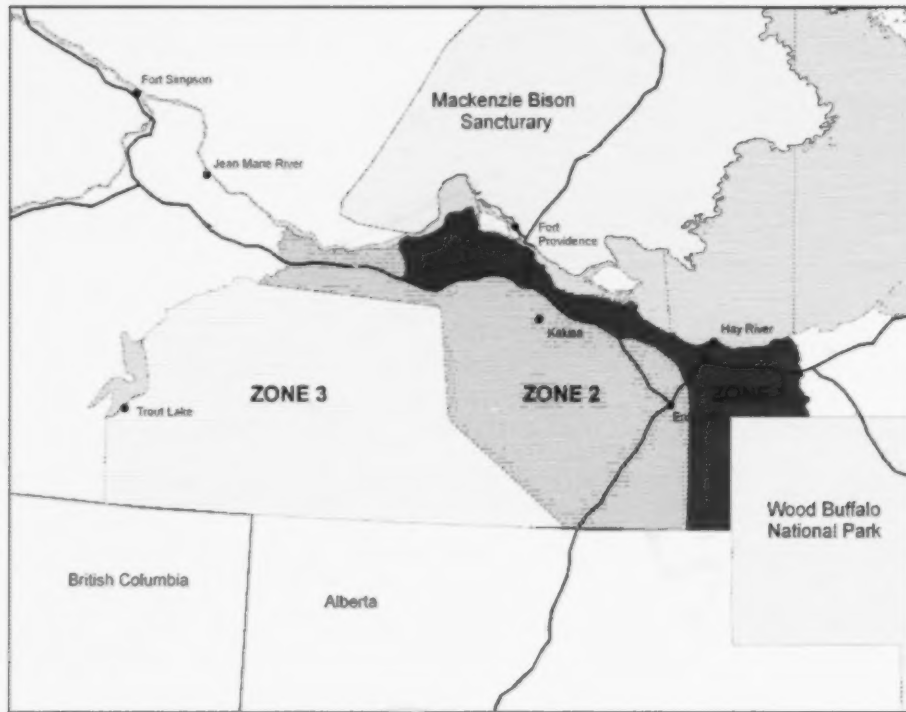


Figure 2: The Bison Control Area is stratified into three zones.

METHODS

We adopted survey methodology used in previous years (Gates *et al.* 1992; Williamson *et al.* 1995; Bohnet & Gates 1997; Nishi 2002; Boulanger *et al.* 2002; Bidwell *et al.* 2004; Campbell *et al.* 2004; Hartop *et al.* 2009) to assure repeatability and comparability of wildlife sightings.

The BCA is stratified into three zones (Figure 2). Zone I is the area in which bison are most likely to be seen, since it is the section of the BCA that is nearest both the Mackenzie Bison Sanctuary herd and WBNP. Therefore, the program focuses on this particular zone, with more frequent aerial surveillance in the form of weekly shoreline patrols. Zone II is a larger zone and is only surveyed twice a year during semi-comprehensive and comprehensive surveys. Zone III is not surveyed as part of the BCA program.

Aerial surveillance is conducted during the winter months when bison and signs of their presence (feeding craters and tracks) are most visible, and we assume the probability of bison moving through the BCA into the Mackenzie bison range is greatest when the Mackenzie River is frozen.

All of the aerial surveys were flown using a Cessna 337, from Landa Aviation. Community representatives from Fort Providence and Hay River were hired as observers to assist with aerial surveillance. Each shoreline patrol was conducted by the pilot and one observer. The BCA technician conducted both the semi-comprehensive and comprehensive surveys with help from two community

observers. During all surveys the aircraft flew 150m to 250m above ground level and at speeds of 180 to 220 km/h.

Shoreline patrols occur throughout the period when river crossings are possible, with an interval of around seven days. These patrols were flown along the Mackenzie River's shores between Pointe Desmarais and Axe Point and took approximately three hours to complete (Figure 3). Patrols ended when reduced snow cover made bison and their tracks difficult to see, and ice conditions on the Mackenzie River deteriorated to the point where crossing by bison became less likely than in mid-winter.

While on shoreline patrols, observers recorded current weather conditions and sightings of any large animals or their tracks. The position of each sighting was recorded using the onboard GPS and plotted on a 1:250 000 scale topographic map. Both data sheets and field maps were faxed to the BCA technician, who entered the data into both OziExplorer® and ArcMap® in order to build maps.

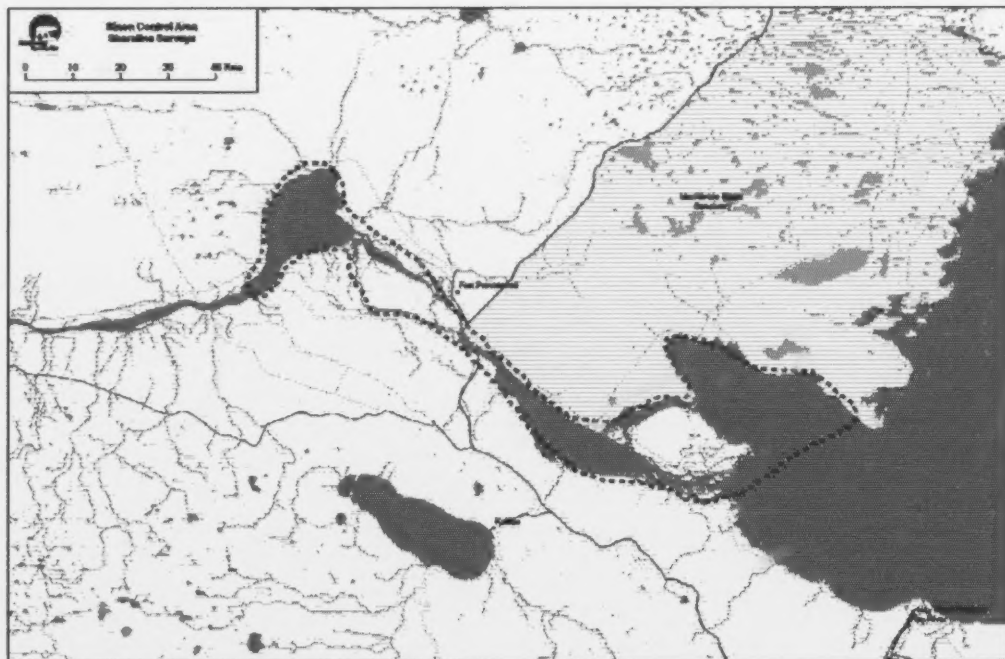


Figure 3: The approximate route to be followed for the weekly shoreline patrols.

A semi-comprehensive survey is run once a year by the BCA program, usually in February. This year the survey covered 1284 nautical miles of flight lines in Zones I and II (Figure 4). The comprehensive survey also covers Zones I and II but at higher intensity (Figure 5). This year the survey covered 3394 nautical miles of flight lines. The comprehensive survey is usually done in March. The flight plans for both the semi-comprehensive and comprehensive surveys used in the 2007-2008 season were adapted for use in the 2008-2009 season.

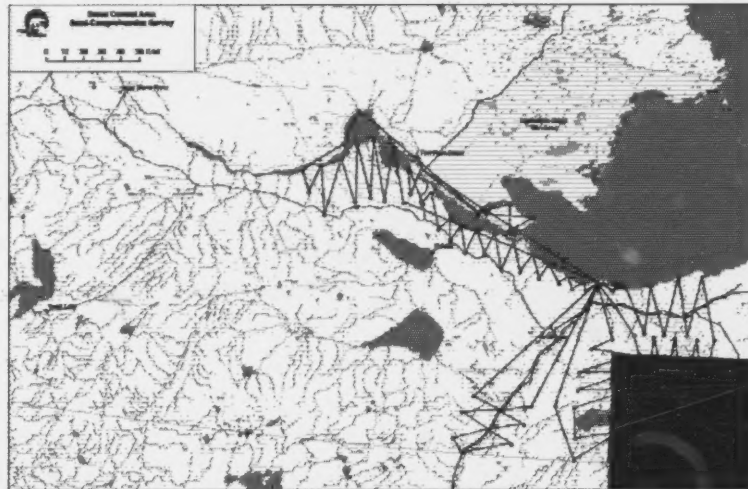


Figure 4: Routes to be followed during the semi-comprehensive survey.

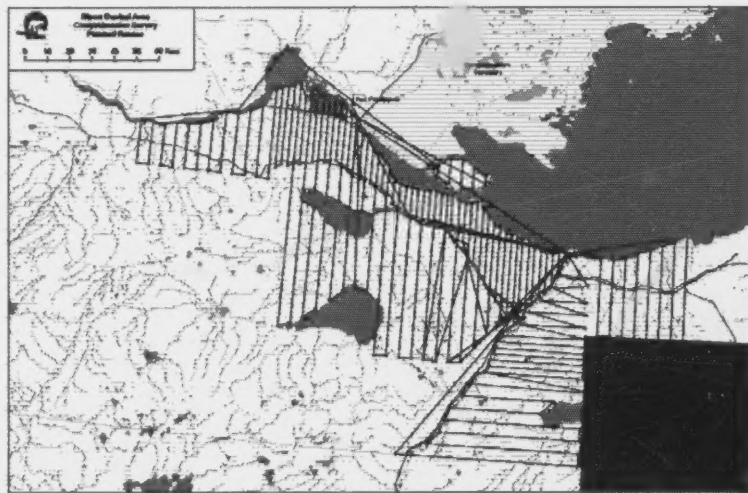


Figure 5: Routes to be followed during the comprehensive survey.

During both the semi- and comprehensive surveys, the program ArcPad® by ESRI was used on a Panasonic® Toughbook (Model CF-19) with a Garmin® hand-held GPS to assist in recording all signs of animals.

RESULTS

There were no bison seen or reported in the BCA nor was any sign of them detected in the BCA during the 2008/09 season. We completed 13 surveys in 77.9 hours on 19 days of flying (Tables 1 and 2). Snow cover and weather and light conditions for detecting bison and their sign from the air were good to excellent except for two days when we encountered low intensity, flat light conditions (Appendix A).

Shoreline Patrols

The weekly shoreline patrols began on December 19, 2008 and finished up on April 24, 2009 (Figures 6.1-6.11). Shoreline patrols were not always completed at regular intervals, due to weather and Landa Aviation's schedule. Total flight time for the shoreline patrols was 33.1 hours with a mean duration of 3.0 hours (Table 1).

Table 1: Summary of BCA Shoreline patrols for the 2008/09 season.

Survey	Date	Hours Flown	Survey	Date	Hours Flown
1	19 Dec 2008	3.4	7	5 Mar 2009	2.7
2	9 Jan 2009	3.1	8	11 Mar 2009	3.5
3	16 Jan 2009	3.5	9	9 Apr 2009	3.2
4	23 Jan 2009	2.4	10	17 Apr 2009	3.1
5	4 Feb 2009	2.5	11	24 Apr 2009	2.0
6	24 Feb 2009	3.7	Total Hours = 33.1		

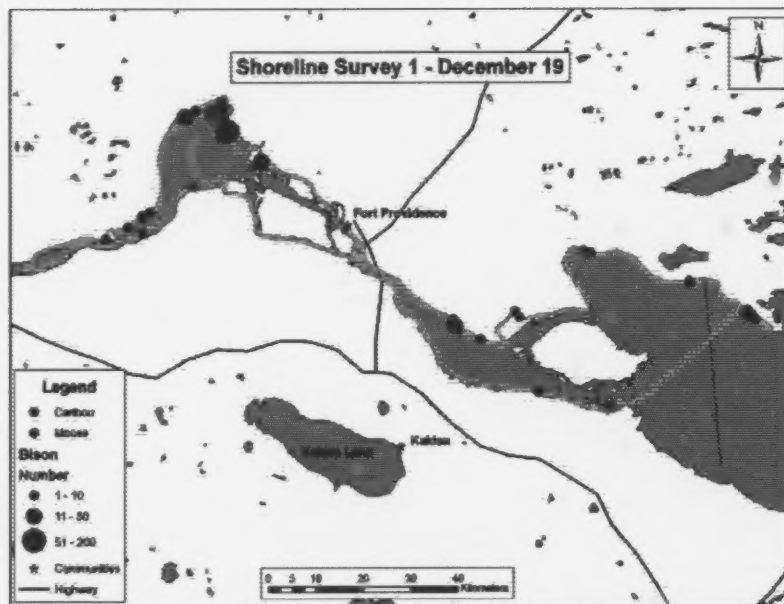


Figure 6.1: All recorded observations of large mammals from the first shoreline patrol, December 19, 2008.

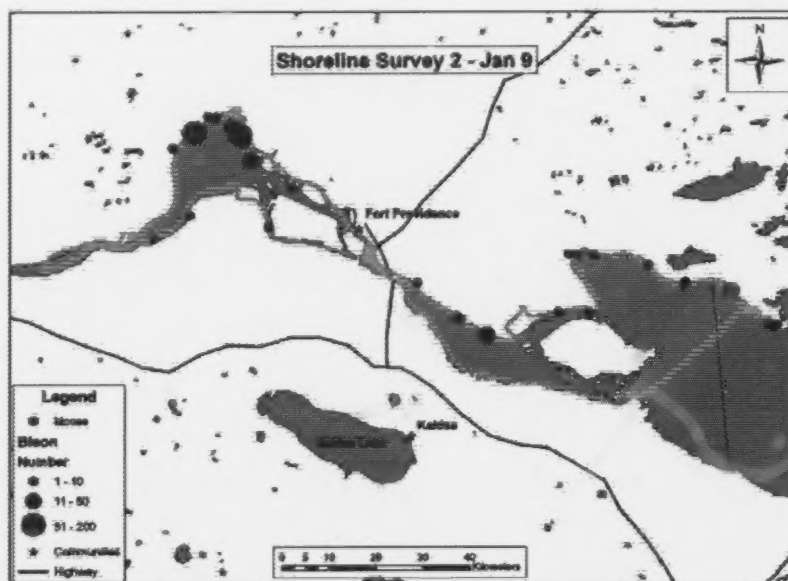


Figure 6.2: All recorded observations of large mammals from the second shoreline patrol, January 9, 2009.

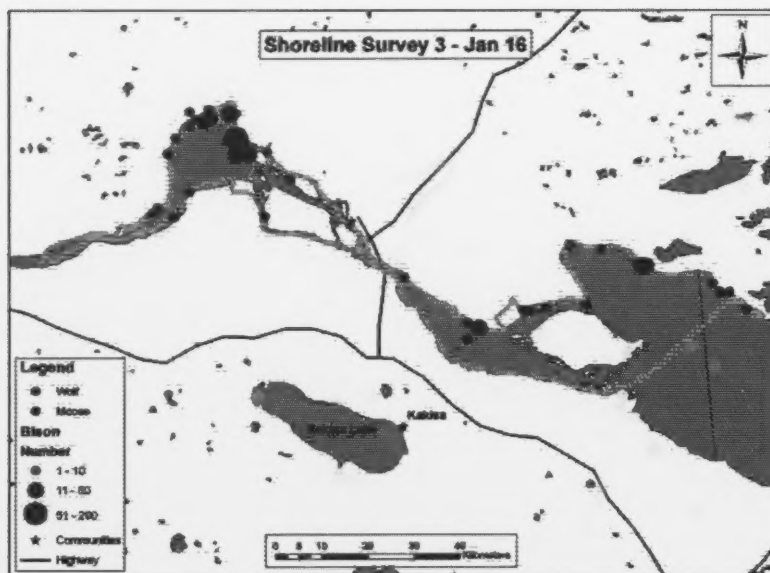


Figure 6.3: All recorded observations of large mammals from the third shoreline patrol, January 16, 2009.

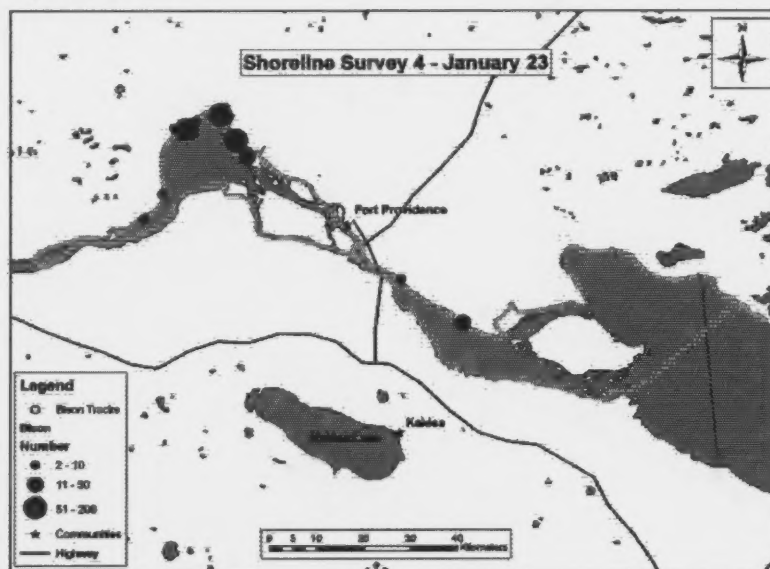


Figure 6.4: All recorded observations of large mammals from the fourth shoreline patrol, January 23, 2009.

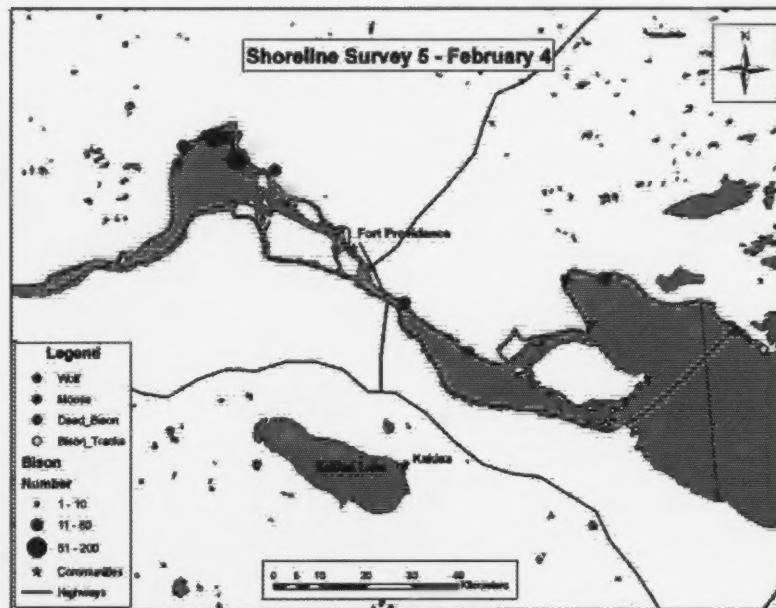


Figure 6.5: All recorded observations of large mammals from the fifth shoreline patrol, February 4, 2009.

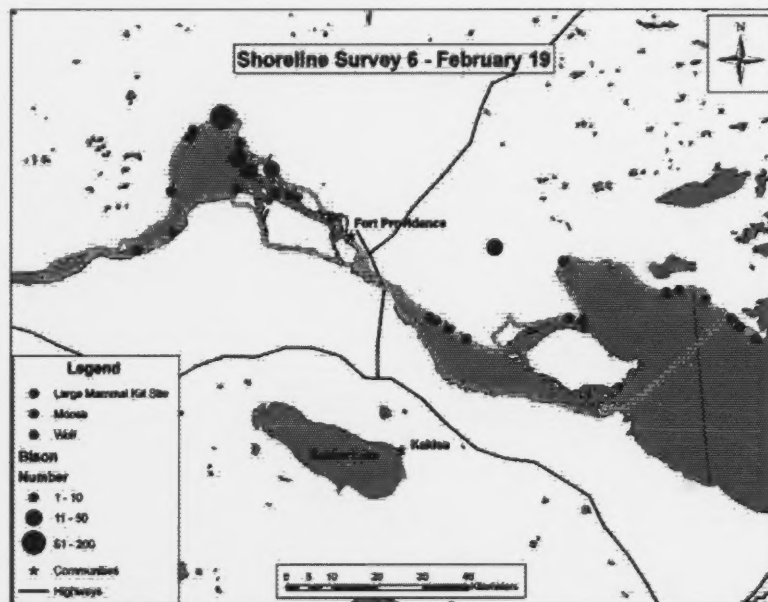


Figure 6.6: All recorded observations of large mammals from the sixth shoreline patrol, February 19, 2009.

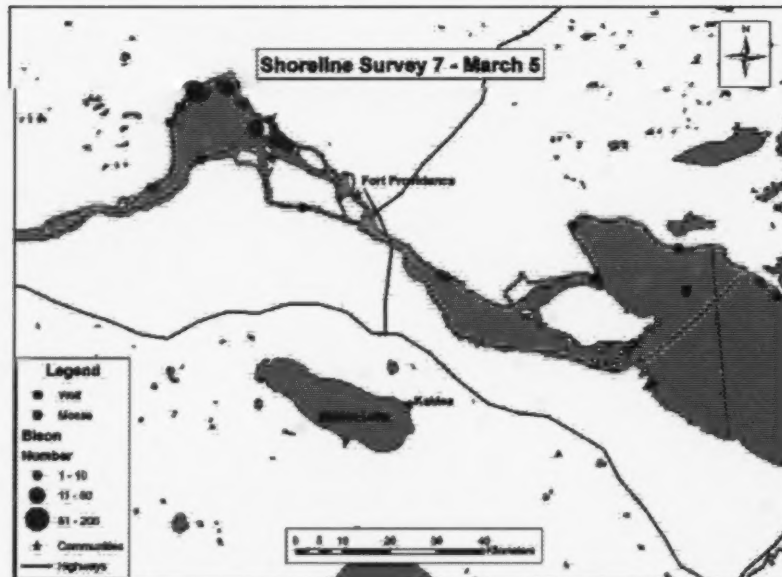


Figure 6.7: All recorded observations of large mammals from the seventh shoreline patrol, March 5, 2009.

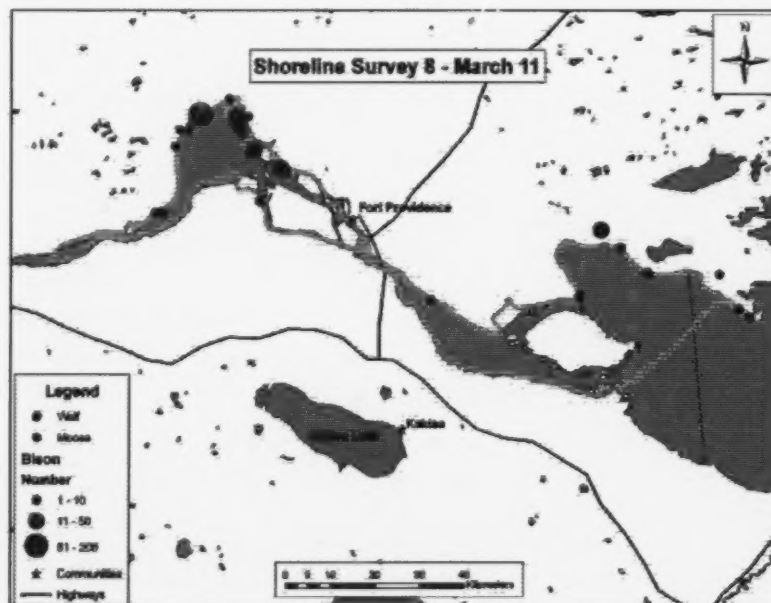


Figure 6.8: All recorded observations of large mammals from the eighth shoreline patrol, March 11, 2009.

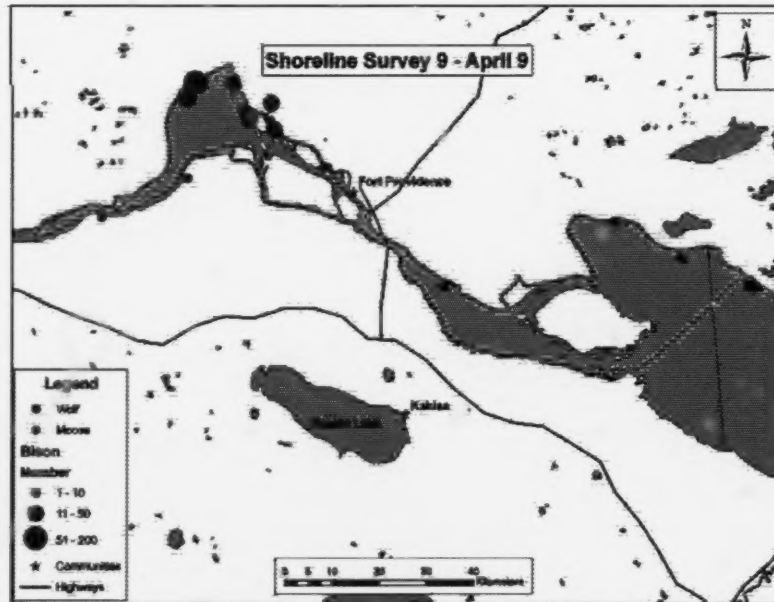


Figure 6.9: All recorded observations of large mammals from the ninth shoreline patrol, April 9, 2009.



Figure 6.10: All recorded observations of large mammals from the tenth shoreline patrol, April 17, 2009.

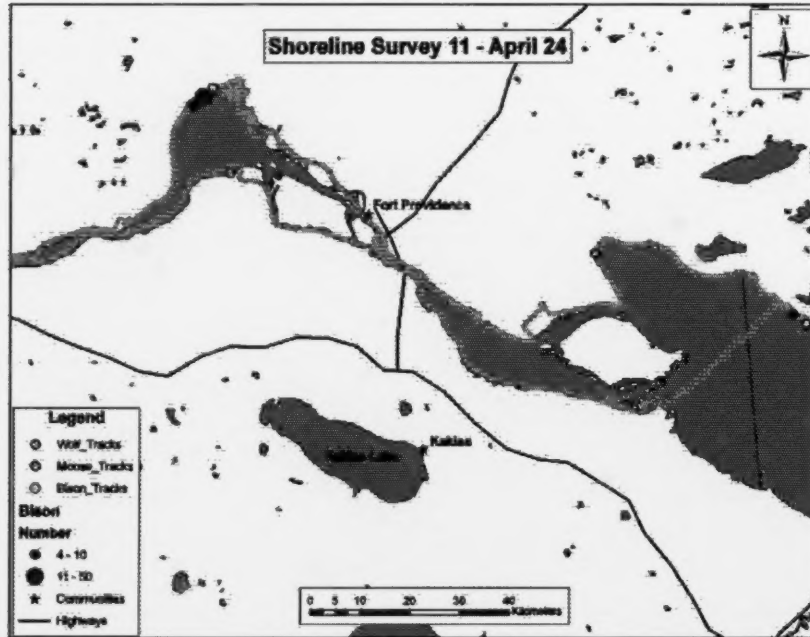


Figure 6.11: All recorded observations of large mammals from the eleventh shoreline patrol, April 24, 2009.

The final shoreline patrol of the 2008/09 season was flown on April 24, 2009. As April progressed, increasing pockets of open water were reported on the Mackenzie River during the shoreline patrols. On the final patrol, the observer was able to see vegetation through the snow around Mills Lake as well as areas of slush along the shoreline of Mills Lake and the Mackenzie River in the area. Based on these observations, it was decided that the shoreline patrols would be stopped because it would be unlikely for any bison to cross the Mackenzie River with ice break-up imminent.

Transect Surveys

The semi-comprehensive and comprehensive surveys were not always completed on consecutive days due to unsuitable snow and light conditions. The semi-comprehensive survey flight was flown February 9 – 12, 2009 (Figure 4). This survey took 14.6 hours to complete (Table 2) and flew over 1284 nautical miles of transect lines, with an estimated 6.0% coverage of the BCA. Results of the semi-comprehensive survey are summarized in maps in Figures 7.1-7.5.

Table 2: Summary of BCA transect surveys for the 2008/09 season.

Survey	Date	Hours Flown
Semi-Comprehensive	9 Feb 2009	0.4
Semi-Comprehensive	10 Feb 2009	4.2
Semi-Comprehensive	11 Feb 2009	6.3
Semi-Comprehensive	12 Feb 2009	3.7
Semi-Comprehensive	TOTAL	14.6
Comprehensive	17 Mar 2009	8.2
Comprehensive	18 Mar 2009	7.7
Comprehensive	19 Mar 2009	7.1
Comprehensive	26 Mar 2009	7.2
Comprehensive	TOTAL	30.2

The comprehensive survey flight was flown between March 17 and 19, 2009 and finished on March 26, 2009 (Figure 5). This survey took 30.2 hours to complete (Table 2) and flew over 3394 nautical miles of transect lines, with an estimated 16.0% coverage of the BCA. Results of the comprehensive survey are summarized in maps in Figures 8.1-8.5.

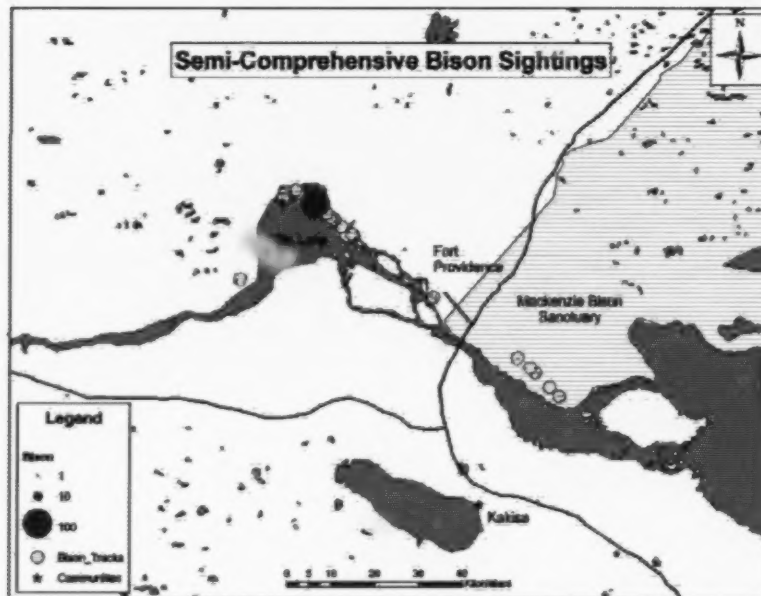


Figure 7.12: All bison and bison tracks recorded during the semi-comprehensive survey.

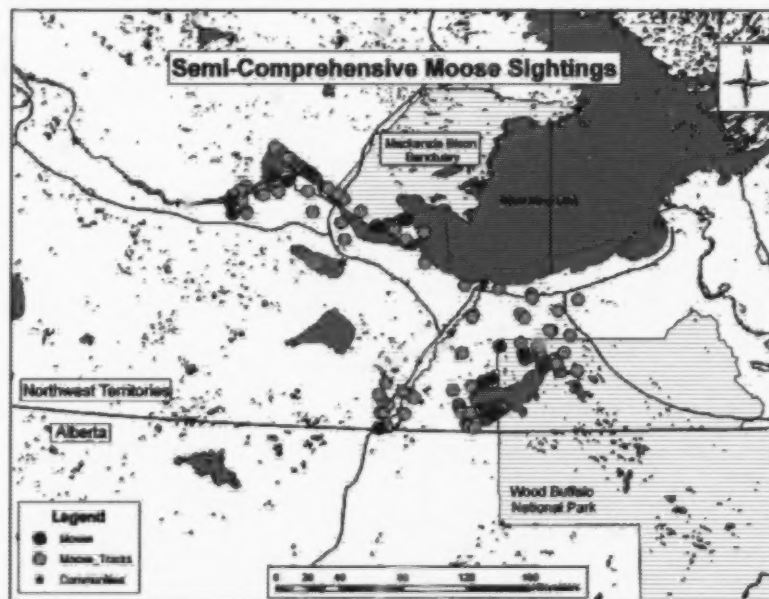


Figure 7.2: All moose and moose tracks recorded during the semi-comprehensive survey.

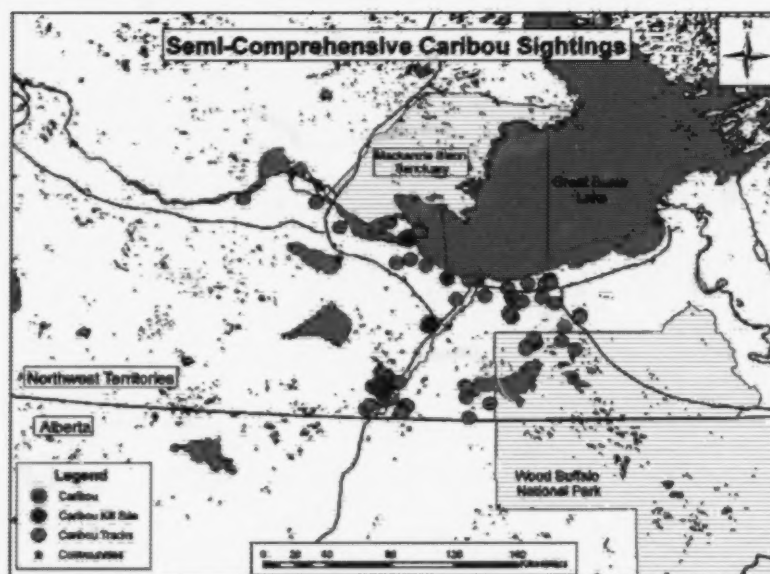


Figure 7.3: All boreal caribou and boreal caribou tracks recorded during the semi-comprehensive survey.

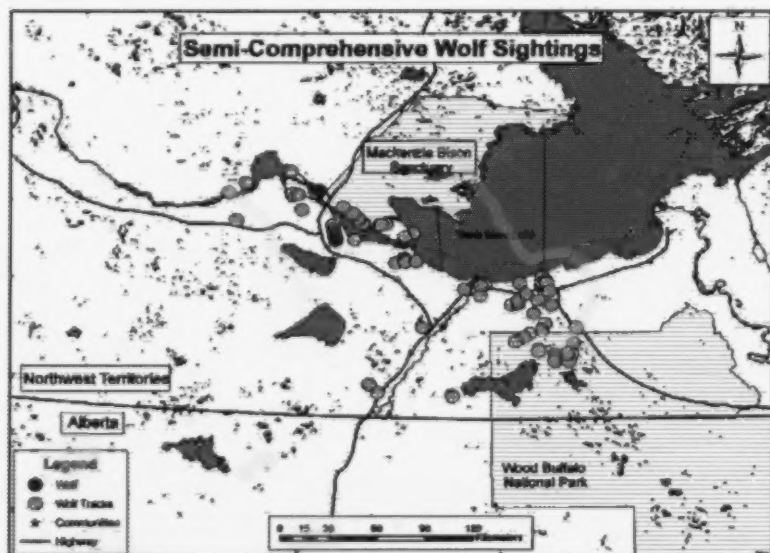


Figure 7.4: All wolf and wolf tracks recorded during the semi-comprehensive survey.

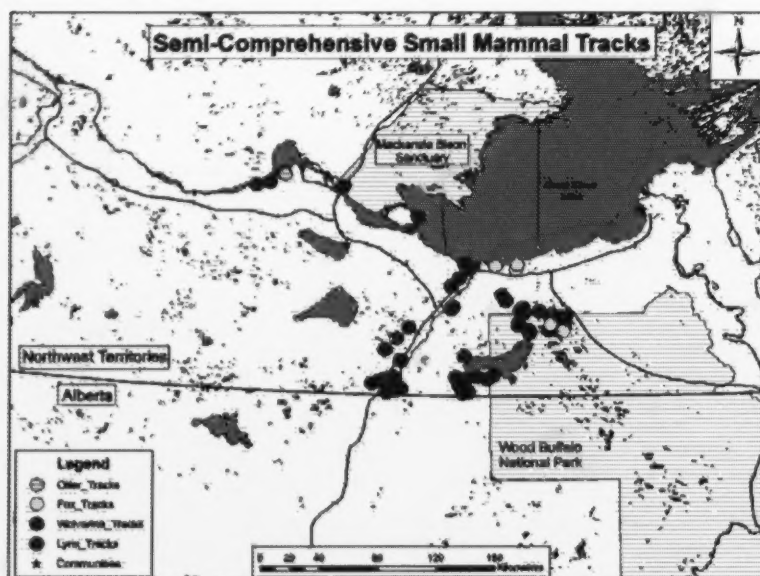


Figure 7.5: All smaller mammal tracks (like lynx, fox, etc.) recorded during the semi-comprehensive survey.

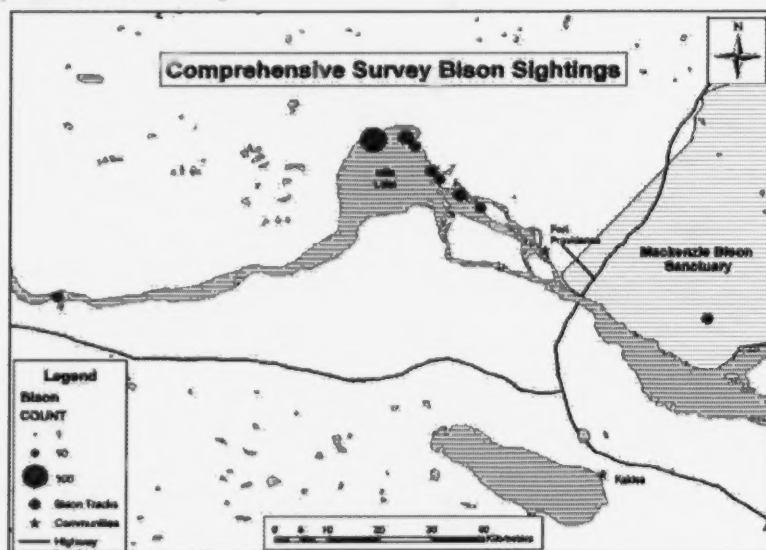


Figure 8.13: All bison and bison tracks recorded during the comprehensive survey.

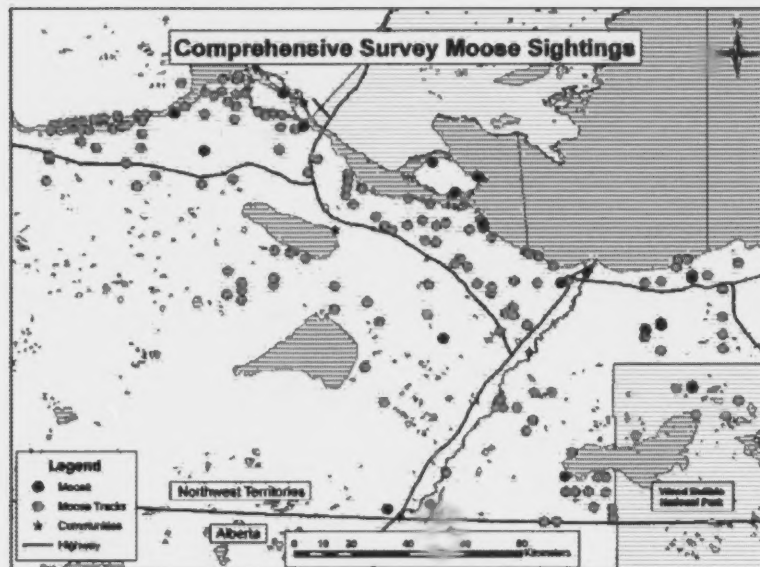


Figure 8.2: All moose and moose tracks recorded during the comprehensive survey.

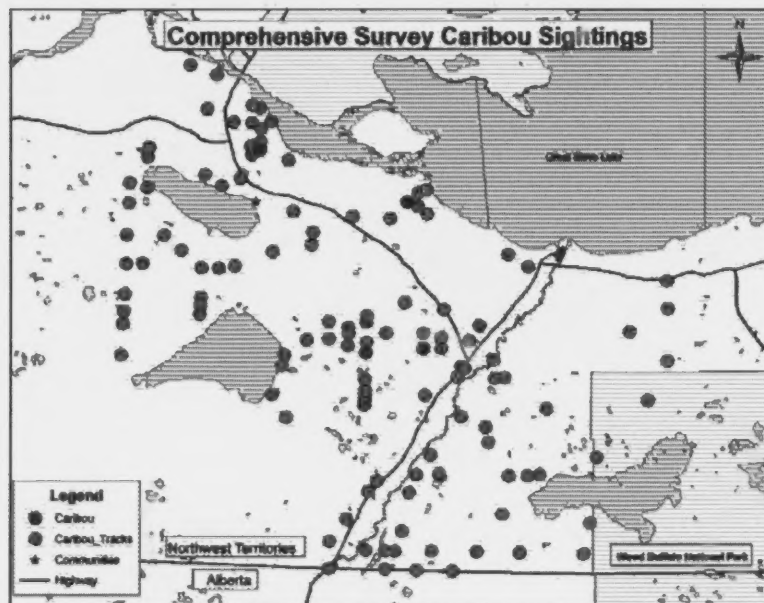


Figure 8.3: All boreal caribou and boreal caribou tracks recorded during the comprehensive survey.

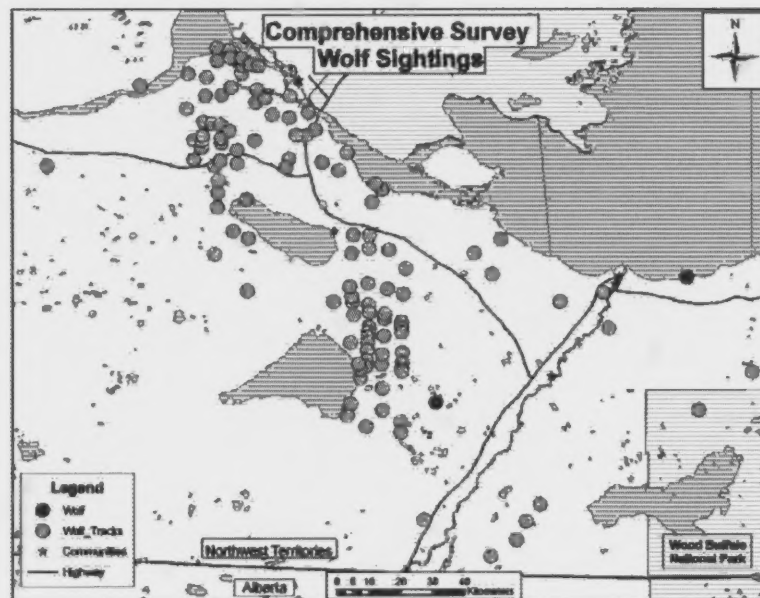


Figure 8.4: All wolf and wolf tracks recorded during the comprehensive survey.

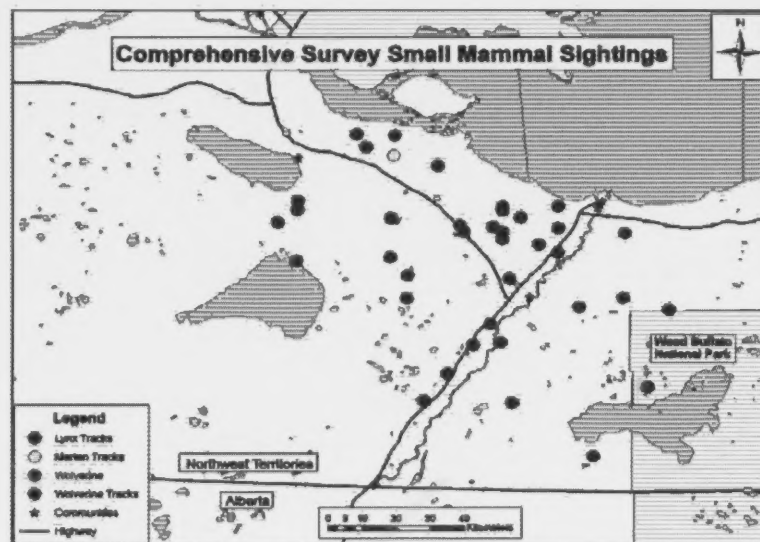


Figure 8.5: All smaller mammals (like lynx, fox, etc.) and smaller mammal tracks recorded during the comprehensive survey.

Wildlife Observations

Although bison have been observed in the BCA in the past (Appendix B), there were no bison observed or any bison sightings received in the 2008-2009 season. Nor were there any signs of bison (tracks, craters, etc.) trying to cross the Mackenzie River during any of the surveillance flights. There were a combined total of 3024 bison observations and 82 of bison tracks on all surveys. All were spotted north of the Mackenzie River (outside of the BCA).

The total number of hours spent on aerial surveillance of the BCA in 2008-2009 was 63.3 hours. All observations were totaled and tabulated. Table 3 summarizes the shoreline patrols, Table 4, the semi-comprehensive survey and Table 5, the comprehensive survey.

Table 3. All recorded observations of animals and tracks seen during the shoreline patrols.

Shoreline Patrols	Bison	Bison Tracks	Moose	Moose Tracks	Boreal Caribou	Wolf	Wolf Tracks	Large Mammal Kill Site
19-Dec	334	0	14	0	3	0	0	0
9-Jan	420	0	10	0	0	0	0	0
16-Jan	309	0	20	0	0	9	0	0
23-Jan	338	1	0	0	0	0	0	0
4-Feb	353	1	7	0	0	8	0	0
	+ 1*							
19-Feb	188	0	17	0	0	1	0	1*
						3		
5-Mar	250	0	13	0	0	1	0	0
						2		
11-Mar	269	0	14	0	0	1	0	0
9-Apr	224	0	1	0	0	9	0	0
17-Apr	15	0	0	0	0	0	0	0
24-Apr	29	13	0	1	0	0	2	0
TOTAL	2730	15	96	1	3	52	2	1*

* Animal was found dead. The dead large mammal could not be identified to species.

Table 4. All recorded observations of animals and tracks seen during the semi-comprehensive survey, February 9-12, 2009.

Semi-Comprehensive Survey	9-Feb	11-Feb	12-Feb	TOTAL
Bison	0	128	0	128
Bison Tracks	0	51	0	51
Moose	10	15	0	25
Moose Tracks	71	61	5	137
Boreal Caribou	0	11	1*	12
Boreal Caribou Tracks	86	122	8	216
Wolf	0	1	1	2
Wolf Tracks	40	23	11	74
Wolverine Tracks	7	4	0	11
Lynx Tracks	27	32	1	60
Fox Tracks	5	0	0	5
Otter Tracks	0	1	0	1

* Animal was found dead.

Table 5. All recorded observations of animals and tracks seen during the comprehensive survey, March 17 – 26, 2009.

Comprehensive Survey	17-Mar	18-Mar	19-Mar	26-Mar	TOTAL
Bison	166	0	0	0	166
Bison Tracks	16	0	0	0	16
Moose	6	2	3	10	21
Moose Tracks	78	36	46	89	249
Boreal Caribou	0	2	26	0	28
Boreal Caribou Tracks	5	76	118	237	436
Wolf	0	0	0	5	5
Wolf Tracks	60	98	8	9	175
Wolverine	0	0	1	0	1
Wolverine Tracks	0	0	10	2	12
Lynx Tracks	0	4	15	7	26
Marten Tracks	0	0	1	0	1

Public Awareness

This year, the attempts at increasing public awareness included school visits, a new pamphlet design, and advertisements. In addition to these campaigns, letters explaining the BCA were sent to all communities and interest groups.

An advertisement placed in "Up Here" magazine the previous year was updated and published in August 2008 (Appendix D). An advertisement was also placed in The Hub, Hay River's local newspaper (Appendix D). These advertisements are meant to remind people of where the BCA is and who to get in touch with if they see a bison in this area. They are run at strategic times of the year, meant to target people at times when they are most likely to see bison, while travelling or hunting.

A radio announcement was aired periodically on the Canadian Broadcasting Corporation (CBC), CJCD and CKLB to inform the public about the BCA and alert anyone travelling through the BCA to report bison sightings to the nearest Environment & Natural Resources office (Appendix C). The manuscripts of two radio advertisements used in the 2007/2008 season were forwarded up to the ENR Communications Planning Specialist for publishing. These announcements, like the newspaper advertisements, are run throughout the year, not only during the BCA season. These advertisements were also placed to reach people at times when they would be more likely to be travelling through the BCA and may see bison.

The BCA Technician visited three schools this season, Diamond Jenness Secondary School in Hay River, Chief Sunrise Education Centre on the Hay River Reserve and P.W. Kaeser High School in Fort Smith. In all three schools the presentations were given to senior high science classes. The BCA program was explained with the assistance of a PowerPoint presentation (Appendix E).

DISCUSSION

There were no observations of bison or signs of bison in the BCA during the 2008/09 season, nor were there any reports of bison or their signs from the public. While there was no evidence that bison were present within the BCA, we cannot conclude definitively that there are none in the control area due to the size of the BCA and the long period each year when the surveillance program is not active. Therefore it would be beneficial for the BCA program to continue to ensure this area remains bison-free and the NWT disease-free wood bison herds (Mackenzie and Nahanni populations) remain free of bovine tuberculosis and brucellosis.

Not all surveys were run under optimal conditions. However, using weather forecasts and advice from Landa Aviation's pilots, flights were done on the best possible days. Weather conditions were recorded for each survey flight (Appendix A).

Survey lines for the semi-comprehensive and comprehensive studies were extended into the northwest corner of Wood Buffalo National Park (Figures 4 and 5) as they were in the 2007/2008 season. Aerial surveillance in coming years should continue to include this area since bison do inhabit the northwest corner of WBNP and there is suitable habitat for bison in the Hay River area, near the NWT/Alberta border.

Efforts to increase public awareness of the BCA program continued this season with the school presentations. Raising public awareness is a very

important component of the BCA program because active surveillance takes place only during the winter months. For the remainder of the year, reports from members of the public are the only means of detecting bison within the control area. Since community meetings are not well attended, focus of the public awareness campaign has been shifted to schools, as the students are attentive and take the information home.

ACKNOWLEDGEMENTS

Several people were integral to the smooth running of the BCA program for the 2008/09 season. Melissa Johns, Manager of Shared Services in Fort Smith handled all administrative aspects, including staffing, finance and pay records. Renewable Resource Officer Evelyn Krutko and Community Support Clerk Carol Bonnetrouge helped arrange for community observers. Dallas Phillips and Wendy Bidwell, who were able to take over the comprehensive survey, were a tremendous help.

The community observers were indispensable and we thank all of them for assisting on our surveillance flights: Lester Antoine, Eric Nadli and Karen Menacho of Fort Providence, and Henry (Sonny) Collins and Lyle Froehlich of Hay River. Many thanks also go to Landa Aviation Ltd. and their pilots Darcy King and Tyler King for their expertise and input as well as help that went beyond the requirements of their job.

Thank you to Kim King, Mattie McNeill and Al Karasiuk for their assistance in arranging BCA presentations at Diamond Jenness Secondary School, Chief Sunrise Education Centre and P.W. Kaeser High School. We are further indebted to Doug Hartt, Data Coordinator for ENR's Wildlife Management Support Services for his assistance with the BCA website. We also give our gratitude to Ella Stinson for her help with all of the public advertisements.

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APPENDIX A
Summary of weather conditions during the BCA program, Season 2008-2009

Table A.1: Summary of weather data during shoreline patrols.

Date	Patrol #	Temp	Winds	Sky	Light	Intensity	Snow Cover
Dec 19	1	-36°C	15 km/h – NE	Scatt	Bright	Medi	Complete
Jan 9	2	-33°C	Calm	Clear	Bright	High	Complete
Jan 16	3	-4.1°C	10 km/h – NE	Clear	Bright	High	Complete
Jan 23	4	-19°C	Calm	Scatt	Bright	High	Complete
Feb 4	5	-21°C	10 km/h – SE	Scatt	Bright	Medi	Complete
Feb 19	6	-18°C	Calm	Scatt	Flat	Medi	Complete
Mar 5	7	-22°C	15 km/h – S	Clear	Bright	High	Complete
Mar 11	8	-15°C	Calm	Clear	Bright	High	Complete
Apr 9	9	-3°C	30 km/h – W	Scatt	Bright	Medi	Complete
Apr 17	10	10°C	20 km/h – SE	Scatt	Bright	Medi	Complete
Apr 24	11	3°C	10 km/h – E	Clear	Bright	High	Low Veg Showing

Table A.2: Summary of weather data during semi- and comprehensive surveys.

Date	Survey	Temp	Winds	Sky	Light	Intensity	Snow Cover
Feb 10	Semi	-19°C	10 km/h - NE	Scattered	Bright	High	Complete
Feb 11	Semi	-27°C	10 km/h - NE	Scattered	Flat	Medi	Complete
Feb 12	Semi	-28°C	Calm	Overcast	Flat	Low	Complete
Mar 17	Comp	-24°C	10 km/h – NE	Clear	Bright	High	Complete
Mar 18	Comp	-20°C	Calm	Clear	Bright	High	Complete
Mar 19	Comp	-15°C	15 km/h – SE	Overcast	Flat	Low	Complete
Mar 26	Comp	-10°C	40 km/h – W	Clear	Bright	High	Complete

APPENDIX B

Summary of surveillance activities and removals of bison from the Northwest Territories Bison Control Area (1988/89 - 2008/09)

Year	No. of Shoreline Patrols (hours)	No. of Semi-Comprehensive Surveys (hours)	No. of Comprehensive Surveys (hours)	Total Hours	No. of Snow-mobile Ground Patrols	Bison Removals
1988 / 89	1					
1989 / 90	2					
1990 / 91	2					
1991 / 92		7				
1992 / 93			3			9 ¹
1993 / 94	14 ²		1		23	
1994 / 95	10 (26) ³	6 (94)	1 (34)	153	33	2 ⁴
1995 / 96	11 (35)	3 (48)	1 (41)	123		3 ⁵
1996 / 97	21 (62)	3 (45)	1 (46)	153		
1997 / 98	14 (43)	3 (46)	1 (48)	137		
1998 / 99	14 (43)	2 (30)	1 (45)	117		
1999 / 00	14 (42)	2 (28)	1 (46)	115		
2000 / 01	13 (40)	2 (30)	1 (50)	120		
2001 / 02	14 (42)	2 (29)	1 (42)	113		
2002 / 03	11 (25)	2 (22)	1 (40)	87		
2003 / 04	13 (31)	1 (11)	1 (37)	78		
2004 / 05	12 (29)	1 (14)	1 (33)	76		
2005 / 06	11 (23)	1 (14)	1 (36)	88		
2006 / 07	12 (38)	1 (19)	1 (36)	93		
2007 / 08	13 (40)	1 (15)	1 (33)	88		
2008 / 09	11 (33)	1 (15)	1 (30)	78		

¹ 17 May 1992: 7 bulls and 1 bull shot near Point de Roche

31 May 1992: 1 bull shot near Point de Roche (no lymph nodes collected)

Serological testing for *Brucella* was negative for all 9 bulls, no lesions consistent with tuberculosis observed on gross pathology or histopathology

² Four patrols covered the Hay River area and extended inland to the northwest boundary

³ Numbers in brackets represent survey hours (rounded off to the nearest hour)

⁴ 13 October 1994, prior to the surveillance season beginning, 1 bison shot by hunter near the eastern boundary of the BCA. Blood and tissue samples collected but no evidence of brucellosis or tuberculosis.

8 March 1995, 1 cow shot by hunter along south shore of Mackenzie River. Wolves had likely wounded the cow. Blood serum and retropharyngeal nodes collected.

⁵ 19 March 1996: 3 cows killed by hunter on the south shore of Mackenzie River. Blood serum (n=2) and retropharyngeal lymph nodes (n=3) collected. No serological reactors *Brucella*, and lymphatic tissue normal on gross examination.

APPENDIX C

Scripts for the Public Service Announcement aired on CBC Radio

North and the ad run on both CJCD and CKLB

Public Service Announcement

A buffer zone, preventing contact between diseased bison and healthy bison in the Mackenzie and Nahanni ranges, lies south of the Mackenzie River to the Alberta border, between Trout River in the west and Buffalo River in the east. All bison in the buffer zone must be removed for testing. Resident hunters may shoot bison in this area at any time. Hunters are required to report any kills as soon as possible. Public participation is an important part of the Bison Control Program. Please report all sightings by calling toll free 1-866-629-6438.

CJCD and CKLB Radio Advertisement

Bison populations in Wood Buffalo National Park and the adjacent Slave River Lowlands are infected with disease and must be removed for testing.

A buffer zone lies south of the Mackenzie River to the Alberta border, between Trout River and Buffalo River, to prevent contact with diseased bison.

Motorists and hunters are requested to report any sightings of bison in the buffer zone to the nearest Environment and Natural Resources office, or by calling 1-866-629-6438.

NWT residents play an important part in the bison control program. Thank you for your participation.

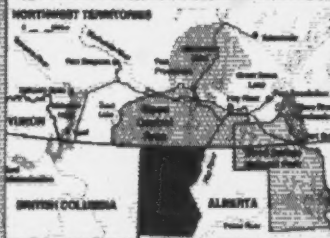
APPENDIX D

Print Advertisements

This half page colour article was run in the 2008 Explorer's Guide magazine.

IF YOU SEE A BISON IN THE CONTROL AREA...

Bison populations in the Slave River Lowlands and the Wood Buffalo National Park area are infected with bovine tuberculosis and brucellosis. In 1987, the Bison Control Area (BCA) was created to prevent the spread of these diseases to the healthy Mackenzie and Nahanni herds. The BCA program is jointly funded by the Parks Canada Agency and the Government of the Northwest Territories.



All bison in the BCA are presumed to be diseased and must be removed and tested.

In the Northwest Territories, two herds have been re-established and are thriving. The Mackenzie herd numbers approximately 200 animals, and represents the largest herd of healthy wild bison in Canada and a cornerstone in the nation's wild bison recovery program. The Nahanni herd now numbers about 200 animals.

Please respect any bison sightings in the BCA as soon as possible to the nearest Environment and Natural Resources (ENR) office.

Under Northwest Territories Wildlife regulations, a method may be employed to remove bison from the BCA. A bison who kills a bison in the BCA is required to report the incident as soon as possible.

If you would like more information regarding the Bison Control Program, please contact any ENR office.

PHONE: Hay River (867) 676-3666 • Fort Resolution (867) 866-3662
 Fort Liard (867) 776-4386 • Fort Smith (867) 833-4386 • Fort Simpson (867) 886-2908



Quarter page black and white advertisements are run in the Hay River Hub.

Bison Control Zone



A control zone, preventing contact between diseased and healthy bison lies south of the Mackenzie River to the Alberta border and between Liout River and Buffalo River.

All bison in this area are presumed to be disease carriers and must be removed for testing. If you see bison in the control zone, please contact your nearest Environment and Natural Resources Officer or call 1-866-629-6438. For more information visit www.enr.gov.nt.ca



Northwest Territories Environment and Natural Resources

APPENDIX E

2008/09 BCA PowerPoint Presentation

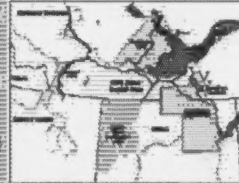
Northwest Territories Bison Control Area



What is the BCA?

• Buffer Zone

- Separates healthy bison from the diseased bison in and around Wood Buffalo National Park
- Any animals found in this area are removed



History of the BCA

- Created in 1987
- To protect the Mackenzie and Nahanni bison herds from both bovine tuberculosis and brucellosis
- Since 1993, the BCA program has been jointly funded by both the Department of Environment and Natural Resources and Parks Canada

Diseases

• Bovine Tuberculosis

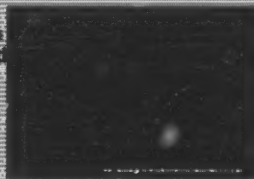
- Caused by a species of bacteria, *Mycobacterium bovis*
- Can be spread through inhalation, ingestion or on contact

• Brucellosis

- Caused by a species of bacteria, *Brucella abortus*
- Spread by ingestion of contaminated material

History

- 1925 to 1928 – Over 8000 plains bison from southern Alberta are released near Fort Smith
- These plains bison carried both diseases and spread them to the wood bison around Fort Smith



How does TB look?

- TB usually affects the lungs – difficulty breathing, coughing and discharge
- Tubercles will form on the lungs, ribs, or other organs like liver, kidneys, spleen, windpipe, lymph nodes

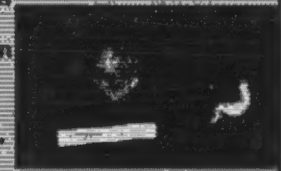


Bovine TB



How does Brucellosis look?

- Can attack the reproductive organs causing abortion, infertility or infection in females and swelling in males
- Also invades joints, causing swelling (hygromas)



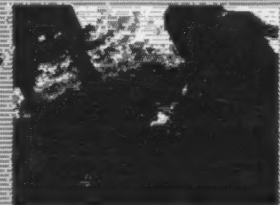
Can I get these diseases?

- Both of these diseases can be transmitted to humans, but if you know the risks and protect yourself with simple practices you will be safe



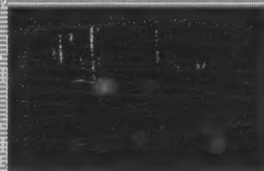
Protect Yourself

- Wear gloves
- Wash hands, clothes and knives when done
- Do not handle infected parts
- Cook meat thoroughly
- Do not feed infected meat to your dogs



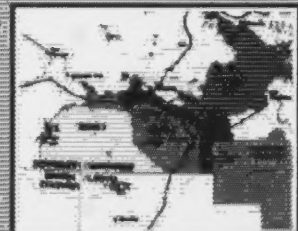
Patrolling the BCA

- To make sure there are no bison in the BCA, we fly patrols of the area
- We also rely on the public to notify us if they see any bison



BCA Zones

- In order to focus our efforts on areas where bison would most likely be spotted, the BCA is split into 3 zones



Shoreline Patrols

- Once a week
- December – March
- Flown by observers from Fort Providence
- Milk Lake to Slave Point
- All large mammals are recorded

Shoreline Patrol
N.W.T.



Semi-Comp Survey

- 3-4 days
- Mid-February
- Zone 1
- If any tracks are seen they are followed



Comp Survey

- 7-8 days
- Late March
- Zone 1 and 2
- More detailed
- Look at likely habitat and terrain



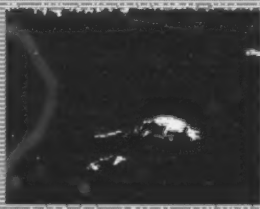
Bison Found in the BCA

- Any signs or reported sightings of bison within the BCA are investigated
- These bison are quickly removed and tested for disease



Bison Found in the BCA

- Under NWT legislation resident hunters may shoot a bison in the BCA at any time of the year, but they must report their kill to an ENR officer ASAP



Informing the Public

- Public Meetings
- Hunter & Trapper Meetings
- Posters & Brochures
- Radio & Television Ads
- Road Signs
- Website
– <http://www.nwt.ca/bca/bca.htm>

